identify potential acquisitions by cellular carriers that would not violate the current Merger Guidelines standards. Other potential transactions involving added capacity for cellular operators might trigger antitrust review, but many of those transactions do not significantly exceed Guidelines standards, and even they might be approved after consideration of other factors.

Current FCC rules allow the formation of quite concentrated market structures, with as few as five firms. Even in this setting, however, the acquisition of added capacity by one of the existing cellular operators would not necessarily violate the structural criteria of the Merger Guidelines. Indeed, there are plausible scenarios, involving the exchange of capacity between a large PCS firm and a cellular operator, that would leave concentration unchanged, or, actually reduce it.

We conclude that, on purely structural grounds, limiting licenses for cellular operators to 35 MHz would be too rigid. Anticompetitive behavior by a single firm, where the largest firm is limited to no more than 40 MHz of bandwidth, is unlikely. Moreover, even when concentration is very high, collusion and other forms of anticompetitive behavior in the market for mobile telecommunications services are effectively inhibited by many non-structural factors.

Limits on Bidding for MTA Licenses

If a cellular company serves more than 10 percent of the population in any MTA, it may not bid for either of the 30 MHz, MTA-wide licenses. It is instead, limited to bidding for one 10 MHz license in each BTA in its current service territories. The basis for this limitation must be either a belief that relatively small areas, such as BTAs, constitute relevant geographic markets, or that allowing a cellular firm to hold, say, 30 MHz across an entire MTA and 55

MHz in some limited area (with more than 10 percent of the population) would threaten competition.

Absent price discrimination, BTAs are not generally relevant geographic markets; actual antitrust markets encompass broader regions. As we discussed in the section on market definition, as long as the firms cannot discriminate in pricing to subscribers in different BTAs, there should be no concern that a cellular carrier with an allocation of 55 MHz in a limited portion of a larger market could exercise market power because such a firm, either acting alone or in concert with other firms, would not be able profitably to raise prices. So long as cellular operators currently serve less than 40 percent of the population in a MTA that is also a market, allowing them to acquire a 30 MHz license would result in a share that is smaller than that of a non-cellular supplier with licenses totaling 40 MHz.

Table 3

HHI Calculations

Digital : Analog / 6 : 1

Cellular Operators Bandwidth Devoted to Analog : 10 MHz

Firms	Bandwidth	Effective Capacity*	Market Share	HHI Contribution
Cellular 1	25	100	10.9%	118
Cellular 2	25	100	10.9%	118
3	30	180	19.6%	383
4	30	180	19.6%	383
5	20	120	13.0%	170
6	10	60	6.5%	43
7	10	60	6.5%	43
8	10	60	6.5%	43
9	10	60	6.5%	43
Totals	170	920		1,342

* Effective Capacity is defined as bandwidth devoted to digital multiplied by the ratio of digital's advantage over analog plus bandwidth devoted to analog.

Source: FCC, Second Report and Order ; Charles River Associates.

Table 4

HHI Calculations

Digital : Analog / 6 : 1

Cellular Operators Bandwidth Devoted to Analog : 10 MHz

Firms	Initial Bandwidth	Effective Capacity*	Market Share	HHI Contribution	Acquired Bandwidth	Final Bandwidth	Effective Capacity*	Market Share	HHI Contribution
Cellular 1	25	100	10.9%	118	10	35	160	17.4%	302
Cellular 2	25	100	10.9%	118		25	100	10.9%	118
3	30	180	19.6%	383		30	180	19.6%	383
4	30	180	19.6%	383		30	180	19.6%	383
5	20	120	13.0%	170		20	120	13.0%	170
6	10	60	6.5%	43		10	60	6.5%	43
7	10	60	6.5%	43		10	60	6.5%	43
8	10	60	6.5%	43		10	60	6.5%	43
9	10	60	6.5%	43	-10	0	0	0.0%	0
Totals	170	920		1,342		170	920		1,484

Herfindahl-Hirschman Analysis		
	Initial HHI	1,342
	Change	142
	Final HHI	1,484

* Effective Capacity is defined as bandwidth devoted to digital multiplied by the ratio of digital's advantage over analog plus bandwidth devoted to analog.

Source: FCC, Second Report and Order ; Charles River Associates.

Table 5A

HHI Calculations

Digital : Analog / 6 : 1

Cellular Operators Bandwidth Devoted to Analog : 10 MHz

Firms	Initial Bandwidth	Effective Capacity*	Market Share	HHI Contribution	Acquired Bandwidth	Final Bandwidth	Effective Capacity*	Market Share	HHI Contribution
Cellular 1	35	160	17.4%	302	5	40	190	20.7%	427
Cellular 2	25	100	10.9%	118		25	100	10.9%	118
3	30	180	19.6%	383		30	180	19.6%	383
4	30	180	19.6%	383		30	180	19.6%	383
5	20	120	13.0%	170		20	120	13.0%	170
6	10	60	6.5%	43		10	60	6.5%	43
7	10	60	6.5%	43		10	60	6.5%	43
8	10	60	6.5%	43	-5	5	30	3.3%	11
Totals	170	920		1,484		170	920		1,576

Herfindahl-Hirschman Analysis		
	Initial HHI	**1,484**
	Change	**92**
	Final HHI	**1,576**

*** Effective Capacity is defined as bandwidth devoted to digital multiplied by the ratio of digital's advantage over analog plus bandwidth devoted to analog.**

Source: FCC, Second Report and Order ; Charles River Associates.

Table 5B

HHI Calculations

Digital : Analog / 6 : 1

Cellular Operators Bandwidth Devoted to Analog : 10 MHz

Firms	Initial Bandwidth	Effective Capacity*	Market Share	HHI Contribution	Acquired Bandwidth	Final Bandwidth	Effective Capacity*	Market Share	HHI Contribution
Cellular 1	35	160	17.4%	302	5	40	190	20.7%	427
Cellular 2	35	160	17.4%	302		35	160	17.4%	302
3	30	180	19.6%	383		30	180	19.6%	383
4	30	180	19.6%	383		30	180	19.6%	383
5	20	120	13.0%	170		20	120	13.0%	170
6	10	60	6.5%	43		10	60	6.5%	43
7	10	60	6.5%	43	-5	5	30	3.3%	11
Totals	170	920		1,626		170	920		1,718

Herfindahl-Hirschman Analysis		
	Initial HHI	**1,626**
	Change	**92**
	Final HHI	**1,718**

*** Effective Capacity is defined as bandwidth devoted to digital multiplied by the ratio of digital's advantage over analog plus bandwidth devoted to analog.**

Source: FCC, Second Report and Order ; Charles River Associates.

Table 6

HHI Calculations

Digital : Analog / 6 : 1

Cellular Operators Bandwidth Devoted to Analog : 10 MHz

Firms	Bandwidth	Effective Capacity*	Market Share	HHI Contribution
Cellular 1	35	160	17.4%	302
Cellular 2	35	160	17.4%	302
3	40	240	26.1%	681
4	40	240	26.1%	681
5	20	120	13.0%	170
Totals	170	920		2,136

* **Effective Capacity is defined as bandwidth devoted to digital multiplied by the ratio of digital's advantage over analog plus bandwidth devoted to analog.**

Source: FCC, Second Report and Order ; Charles River Associates.

Table 7

HHI Calculations

Digital : Analog / 6 : 1

Cellular Operators Bandwidth Devoted to Analog : 10 MHz

Firms	Initial Bandwidth	Effective Capacity*	Market Share	HHI Contribution	Acquired Bandwidth	Final Bandwidth	Effective Capacity*	Market Share	HHI Contribution
Cellular 1	35	160	17.4%	302	5	40	190	20.7%	427
Cellular 2	35	160	17.4%	302		35	160	17.4%	302
3	40	240	26.1%	681		40	240	26.1%	681
4	40	240	26.1%	681		40	240	26.1%	681
5	20	120	13.0%	170	-5	15	90	9.8%	96
Totals	170	920		2,136		170	920		2,186

Herfindahl-Hirschman Analysis		
	Initial HHI	**2,136**
	Change	**50**
	Final HHI	**2,186**

*** Effective Capacity is defined as bandwidth devoted to digital multiplied by the ratio of digital's advantage over analog plus bandwidth devoted to analog.**

Source: FCC, Second Report and Order ; Charles River Associates.

Table 8

HHI Calculations

Digital : Analog / 6 : 1

Cellular Operators Bandwidth Devoted to Analog : 10 MHz

Firms	Initial Bandwidth	Effective Capacity*	Market Share	HHI Contribution	Acquired Bandwidth	Final Bandwidth	Effective Capacity*	Market Share	HHI Contribution
Cellular 1	35	160	17.4%	302	5	40	190	20.7%	427
Cellular 2	35	160	17.4%	302		35	160	17.4%	302
3	40	240	26.1%	681	-5	35	210	22.8%	521
4	40	240	26.1%	681		40	240	26.1%	681
5	20	120	13.0%	170		20	120	13.0%	170
Totals	170	920		2,136		170	920		2,101

Herfindahl-Hirschman Analysis		
	Initial HHI	2,136
	Change	-35
	Final HHI	2,101

* Effective Capacity is defined as bandwidth devoted to digital multiplied by the ratio of digital's advantage over analog plus bandwidth devoted to analog.

Source: FCC, Second Report and Order ; Charles River Associates.

Table 9

HHI Calculations

Digital : Analog / 6 : 1

Firms	With Analog Handicap (10MHz)				Without Analog Handicap			
	Bandwidth	Effective Capacity*	Market Share	HHI Contribution	Bandwidth	Effective Capacity*	Market Share	HHI Contribution
Cellular 1	25	100	10.9%	118	25	150	14.7%	216
Cellular 2	25	100	10.9%	118	25	150	14.7%	216
3	30	180	19.6%	383	30	180	17.6%	311
4	30	180	19.6%	383	30	180	17.6%	311
5	20	120	13.0%	170	20	120	11.8%	138
6	10	60	6.5%	43	10	60	5.9%	35
7	10	60	6.5%	43	10	60	5.9%	35
8	10	60	6.5%	43	10	60	5.9%	35
9	10	60	6.5%	43	10	60	5.9%	35
Totals	170	920		1,342	170	1,020		1,332
Herfindahl-Hirschman Analysis				1,342				1,332

* Effective Capacity is defined as bandwidth devoted to digital multiplied by the ratio of digital's advantage over analog plus bandwidth devoted to analog.

Source: FCC, Second Report and Order ; Charles River Associates.

Table 10

HHI Calculations

Digital : Analog / 1 : 1
Entry of Two SMRs with 5 MHz Each

Firms	Pre-SMR Entry			Post-SMR Entry		
	Bandwidth	Market Share	HHI Contribution	Bandwidth	Market Share	HHI Contribution
Cellular 1	25	14.7%	216	25	13.9%	193
Cellular 2	25	14.7%	216	25	13.9%	193
3	30	17.6%	311	30	16.7%	278
4	30	17.6%	311	30	16.7%	278
5	20	11.8%	138	20	11.1%	123
6	10	5.9%	35	10	5.6%	31
7	10	5.9%	35	10	5.6%	31
8	10	5.9%	35	10	5.6%	31
9	10	5.9%	35	10	5.6%	31
SMR 10				5	2.8%	8
SMR 11				5	2.8%	8
Totals	170		1,332	180		1,204
Herfindahl-Hirschman Analysis			1,332			1,204

Source: FCC, Second Report and Order ; Charles River Associates.

Table 11A

HHI Calculations

Digital : Analog / 1 : 1
Entry of One SMR with 10 MHz

Firms	Pre-SMR Entry			Post-SMR Entry		
	Bandwidth	Market Share	HHI Contribution	Bandwidth	Market Share	HHI Contribution
Cellular 1	35	20.6%	424	35	19.4%	378
Cellular 2	35	20.6%	424	35	19.4%	378
3	40	23.5%	554	40	22.2%	494
4	40	23.5%	554	40	22.2%	494
5	20	11.8%	138	20	11.1%	123
SMR 6				10	5.6%	31
Totals	170		2,093	180		1,898
Herfindahl-Hirschman Analysis			2,093			1,898

Source: FCC, Second Report and Order ; Charles River Associates.

Table 11B

HHI Calculations

Digital : Analog / 1 : 1
One SMR with 10 MHz

Firms	Initial Bandwidth	Market Share	HHI Contribution	Acquired Bandwidth	Final Bandwidth	Market Share	HHI Contribution
Cellular 1	35	19.4%	378	5	40	22.2%	494
Cellular 2	35	19.4%	378		35	19.4%	378
3	40	22.2%	494		40	22.2%	494
4	40	22.2%	494		40	22.2%	494
5	20	11.1%	123		20	11.1%	123
SMR 6	10	5.6%	31	-5	5	2.8%	8
Totals	180		1,898		180		1,991

Herfindahl-Hirschman Analysis	Initial HHI	1,898
	Change	93
	Final HHI	1,991

Source: FCC, Second Report and Order ; Charles River Associates.

Table 12

CTIA PROPOSAL

HHI Calculations

Digital : Analog / 6 : 1

Firms	With Analog Handicap (10MHz)				Without Analog Handicap			
	Bandwidth	Effective Capacity*	Market Share	HHI Contribution	Bandwidth	Effective Capacity*	Market Share	HHI Contribution
Cellular 1	25	100	10.9%	118	25	150	14.7%	216
Cellular 2	25	100	10.9%	118	25	150	14.7%	216
3	20	120	13.0%	170	20	120	11.8%	138
4	20	120	13.0%	170	20	120	11.8%	138
5	20	120	13.0%	170	20	120	11.8%	138
6	20	120	13.0%	170	20	120	11.8%	138
7	10	60	6.5%	43	10	60	5.9%	35
8	10	60	6.5%	43	10	60	5.9%	35
9	10	60	6.5%	43	10	60	5.9%	35
10	10	60	6.5%	43	10	60	5.9%	35
Totals	**170**	**920**		**1,087**	**170**	**1,020**		**1,125**
Herfindahl-Hirschman Analysis				**1,087**				**1,125**

* Effective Capacity is defined as bandwidth devoted to digital multiplied by the ratio of digital's advantage over analog plus bandwidth devoted to analog.

Source: Charles River Associates.